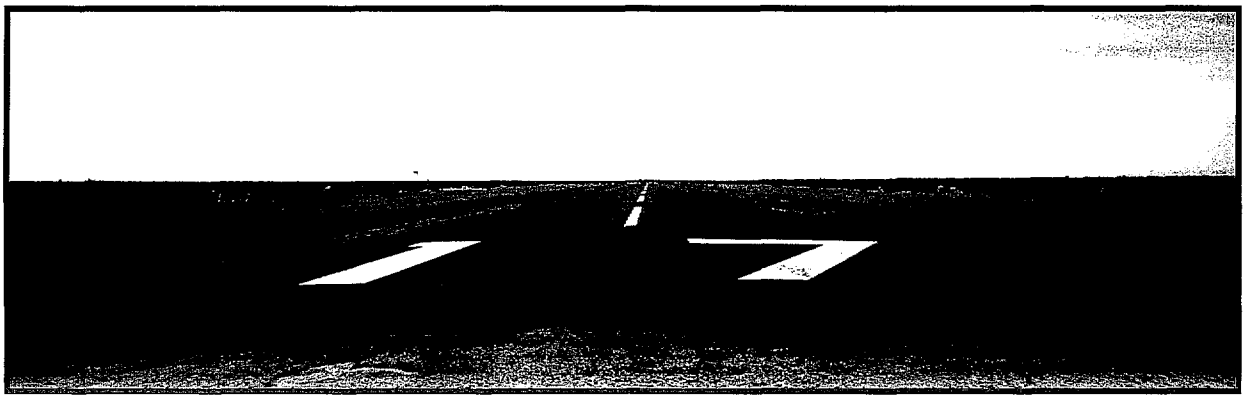
Rolle AIRFIELD

YUMA COUNTY AIRPORT AUTHORITY

Chapter One
INVENTORY

Chapter One

INVENTORY



The first step in the preparation of the airport master plan for Rolle Airfield is the collection of information relating to both the Airfield and the area that it serves. The data collected and presented in this chapter will be used in subsequent analyses in this study. Information relating to existing Airfield facilities, regional airspace, and air traffic control is gathered along with pertinent background information regarding the cities of San Luis and Somerton, and the surrounding region. This includes material pertaining to the Airfield's role in county, state, and national aviation systems, as well as the area's socioeconomic profile.

The information outlined in this chapter serves as the cornerstone, or starting point, for all subsequent chapters. An accurate and complete inventory is, therefore, essential to the success of the master plan. This is extremely important since the findings, conclusions and recommendations made in the plan are dependent upon information collected. This information was gathered during the months of September, October, and November 1999 through on-site investigations of the Airfield and interviews with Yuma County Airport Authority (YCAA) staff, airport users, representatives of various local, County, and federal entities, and regional economic development agencies. Additional information was obtained from documents provided by the Federal Aviation Administration (FAA), the Arizona Department of Transportation - Aeronautics Division (ADOT), and the Yuma County Airport Authority. The inventory data and supporting information presented in this chapter is deemed the most current and accurate data available at the time of this publication.

AIRPORT SETTING

Rolle Airfield is a VFR (visual flight rules), daytime use only, general aviation (GA) airport. At an elevation of 163 feet MSL (above mean sea level) and covering 640 acres, Rolle Airfield is located in extreme southwestern Yuma County, Arizona, in an area which was annexed by the City of San Luis in June 1999. The Airfield is located approximately four (4) nautical miles northeast of the heart of San Luis and five (5) nautical miles south of the City of Somerton. U.S. Highway 95 connects both of these communities to the City of Yuma, which is located along Interstate 8, some 12 miles north of Somerton, and to San Luis Rio Colorado, Mexico, which is situated approximately six (6) miles southwest of Rolle Airfield, across the border from San Luis, Arizona.

Rolle Airfield is located on land which is owned by the U.S. Bureau of Reclamation, and is licensed to and operated by the Yuma County Airport Authority (YCAA), which also manages civilian operations at Yuma International Airport-MCAS (Marine Corps Air Station). Responsibilities of the YCAA include planning, development, administration, and maintenance of the Airfield. As the Airfield is unattended (no permanent, on-site employees), YCAA staff at Yuma International Airport perform administration, operations, and maintenance of all the facilities located at or relating to Rolle Airfield.

Presently, Rolle Airfield serves a unique function, in that it acts as a 'reliever" airport for civilian general aviation aircraft by providing a safe site at which pilots can practice their flying skills away from the intense aviation activity of Yuma International Airport/MCAS. Additionally, the military still conducts aviation-related training at Rolle Airfield. In 1998, the Airfield's estimated and reported *(FAA Form 5010, Airport Master Record, Rolle Airfield, dated 12/03/1998)* operations totaled 4,900, of which, 2,000 (41 percent) were military with the balance of 2,900 being reported as GA local operations.

Although, it currently has no based aircraft or significant landside facilities, Rolle Airfield's geographic location and surrounding open land use make it quite attractive when assessing the existing and future general aviation needs of the immediate area. From a general aviation perspective, however, it's current Airport Reference Code (ARC) of B-I and runway pavement strength rating of 8,000 pounds single-wheel loading (SWL) limits the Airfield almost exclusively to small, single-engine, piston, recreational-type aircraft performing training exercises such as touch-and-go procedures. The YCAA is, therefore, at a critical juncture in defining and determining the Airfield's future regional aviation role while they are still able to minimize the encroachment of the surrounding areas. The **Location Map, Exhibit 1A**, illustrates Rolle Airfield and it's relationship to the surrounding region.

REGIONAL PROFILE

Agriculture dominates the economy of Yuma County. In 1995, for the first time ever, Yuma County was the states' leading agriculture-producing county. Approximately $806 million in crops, fruits, and vegetables were produced on Yuma County farms and ranches in 1995. Given the current rate-of-growth, county-wide agribusiness could exceed a billion dollars within the next few years. Other significant contributors to the county economy include military installations (Yuma Marine Corps Air Station and Yuma Proving Grounds); tourism comprised of mainly cross-country travelers, Mexican and winter visitors; retail trade; light industry (manufacturing); and government services.

Like the county, but on a more local level, the economies of San Luis and Somerton depend mainly on agriculture along with retail trade, and light industry. A 26-acre light industrial complex has been developed in San Luis while two other 40-acre complexes are currently under construction along State Highway 95. An additional 150 acres of state land within the San Luis city limits is zoned for industrial development and is located along the U.S./Mexico border with San Luis Rio Colorado. Two additional projects expected to have significant economic impact

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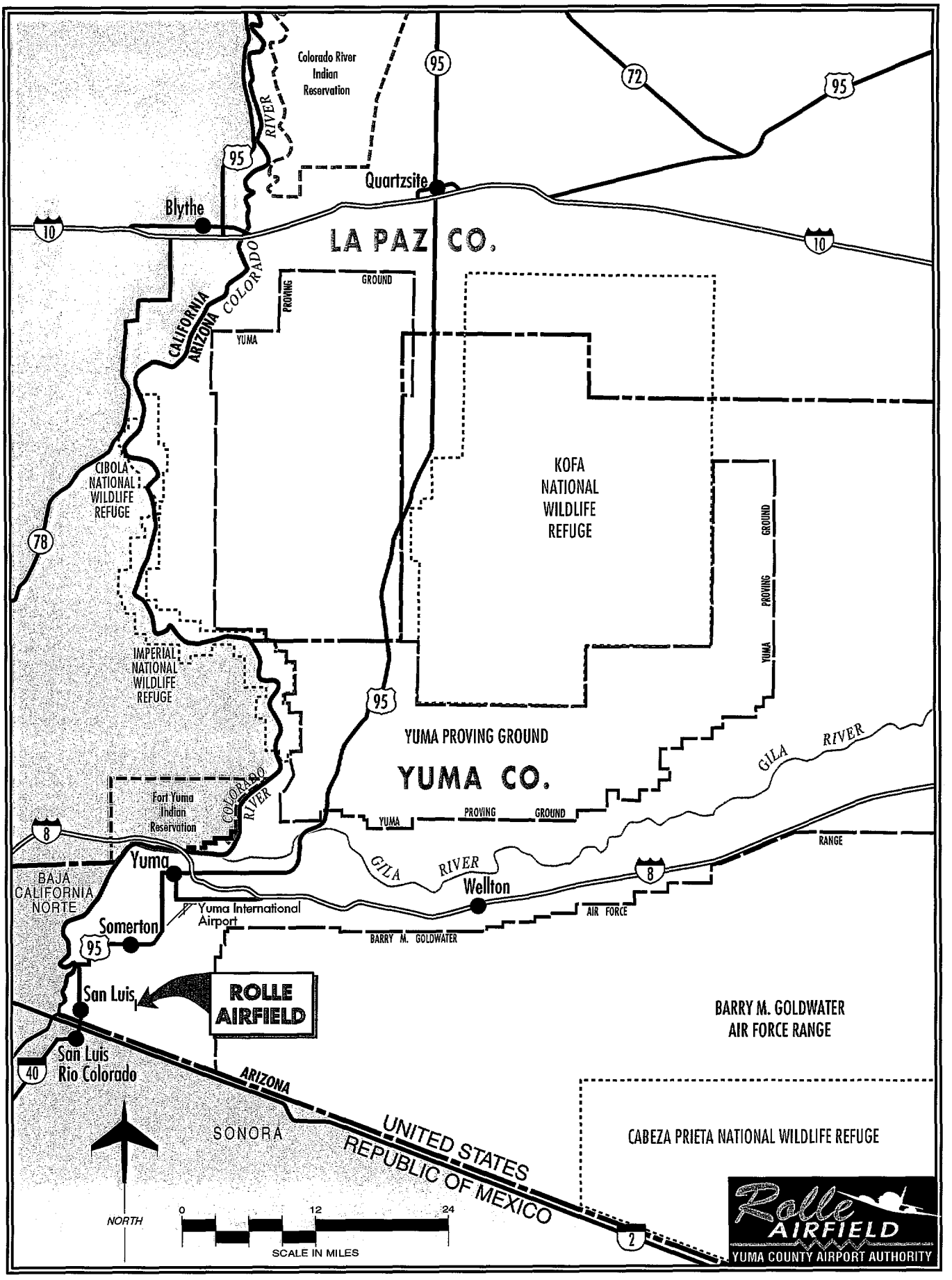

Exhibit 1A
LOCATION MAP

on San Luis and the surrounding area include the construction of a new commercial port of entry (POE) facility, and the construction of a private prison within San Luis' city limits.

The first of these projects proposes the relocation of the existing San Luis-San Luis Rio Colorado commercial POE to a new site located approximately five miles east of the present commercial/noncommercial border crossing. The non-commercial POE would remain in its current location. This project will greatly relieve congestion and time-delays, for both commercial and non-commercial border crossings, currently experienced at the existing POE. The new POE will be located directly adjacent to and north of the San Luis Rio Colorado Industrial Park on the U.S.-Mexico border. The construction of this new facility, to be accomplished in three phases, will also necessitate upgrades to the local road network such as the construction of two miles of a two lane access road along the current Avenue E plan line between 23rd Street and the dedicated POE right-of-way. Further complimentary roadway improvements scheduled for the third phase of this project would include widening of Yuma County Avenue E, and the widening of Yuma County 23rd Street or construction of the Area Service Highway (ASH). The proposed POE site and affected roadways are illustrated on **Exhibit 1B**.

The second project, which is still in the preliminary discussion stage, proposes building a privately-run, 2,000-bed prison in the eastern part of San Luis near the existing state prison facility. This facility would be used for the incarceration of prisoners from the state of Hawaii, whose prison system is overcrowded and has, due to environmental concerns, run out of sites at which to build new facilities. The state of Hawaii has been very proactive, sending state officials to several southwestern states investigating the potential of perspective prison facility locations. According to officials the City of San Luis, due to its proximity, Hawaiian representatives have expressed a preference for a future Arizona facility location.

Located in the southwestern corner of Arizona, San Luis is immediately adjacent to both Mexico and California. San Luis was established in 1930 with the opening of the U.S. Port of Entry. Since incorporation in 1979, it has experienced tremendous population and commercial growth making it one of the fastest growing communities of Yuma County. San Luis' sister city across the border, the Mexican free-port of San Luis Rio Colorado, Sonora, has a population estimated at more than 200,000, and is reputed to be Mexico's fastest growing city. It offers a large available labor force along with all the facilities required for modern manufacturing operations.

In Somerton, many residents are employed in citrus and vegetable growing and processing, although light industries are becoming more important. Like San Luis, light industries located in Somerton would be well positioned to benefit from the large labor force available across the border in Mexico. Furthermore, a small commercial service sector with future growth potential already exists in Somerton.

Several historic attractions are located within a 30-minute drive of San Luis and Somerton including the old Territorial Prison, Fort Yuma and the 16th century St. Thomas Mission. Laguna, Imperial and Morelos Dams as well as the California sand dunes are also nearby. Fishing, water skiing and swimming

at lakes along the Colorado River attract both residents and tourists alike. Additionally, San Luis serves as the gateway to small Mexican fishing villages located south of San Luis along the Gulf of California, Sonora, Mexico.

THE AIRPORT'S SYSTEM ROLE

Airport planning exists at several levels from local or regional to state to national. Each level has its own emphasis and purpose. This airport master plan serves as the primary local airport planning document.

At the state level Rolle Airfield is included in the *Arizona State Aviation System Plan (SASP).* The purpose of the *SASP* is to ensure that Arizona has an adequate and efficient airport system that will serve its aviation needs well into the next century. The *SASP* determines each airport's specific role in the State aviation system and establishes funding requirements. Rolle Airfield is classified as a "Secondary Airport" under public ownership within the Arizona Airport System. ADOT defines a Secondary Airport as "*All public use facilities not in the State's Primary System*". Through the *State's Continuous Aviation System Planning Process (CASPP),* the *SASP* is updated every five years. The most recent published update is the *1995 Arizona State Aviation Needs Study (SANS),* however, the year *2000 SANS* update is currently in progress and is due for release sometime in mid-2000. The mission of the *SANS* is to provide policy guidelines that promote and maintain a safe aviation system in Arizona, assess the State's airports capital improvement needs, and identify resources and strategies to implement the plan. The Arizona *SANS* for 1995 encompasses all public and private airports and heliports that are open to the public, including American Indian and recreational airports.

At the national level, the *National Plan of Integrated Airport Systems (NPIAS) (1998-2002)* identifies more than 3,660 airports (both existing and proposed) that are important to the national air transportation system. These airports are further classified into seven Airport Type categories. To be included in the *NPIAS,* an airport must meet the definition of one these categories. Additionally, an airport must be included in the *NPIAS* to be eligible for federal funding assistance. General aviation airports are normally included if they account for enough activity (usually 10 based aircraft) and are at least 20 miles from the nearest NPIAS airport. At times, the activity requirements may be relaxed for remote locations or other mitigating circumstances. Presently, Rolle Airfield, a general aviation airport, does not meet the above requirements and is, therefore, not included in the *NPIAS.* The 2,472 general aviation airports that are currently within the *NPIAS* have an average of 29 based aircraft and account for 37 percent of the nation's general aviation fleet. The six (6) additional airport types in the NPIAS account for 55 percent of all GA aircraft, while the remaining eight (8) percent are based at airports or landing sites that are not part of the *NPIAS.* General aviation airports are the most convenient form of air transportation for nearly 19 percent of the population and are of particular importance to rural areas. The *NPIAS* includes total estimates on development needs for the nation's airports that qualify for federal funding assistance.

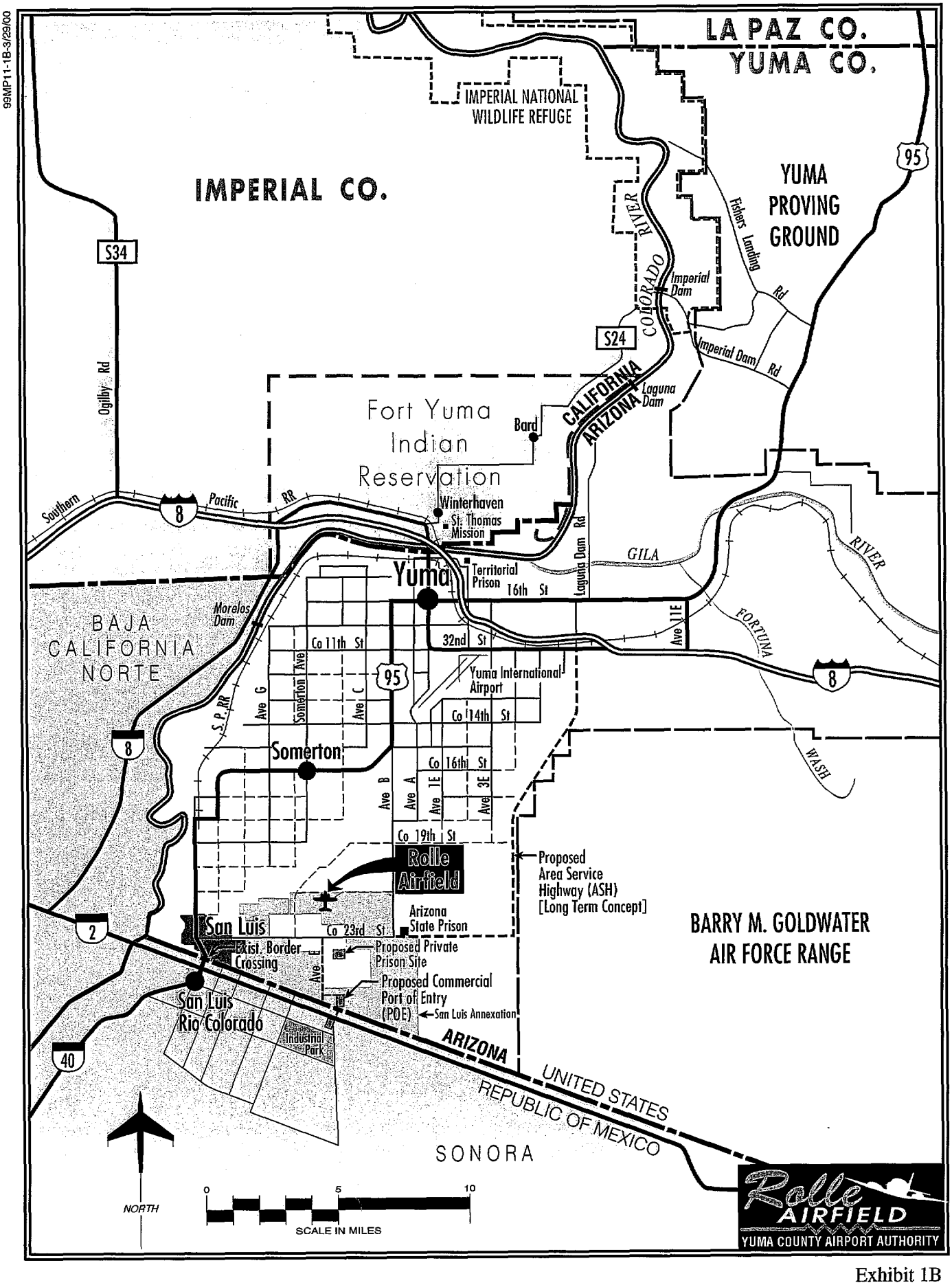

Exhibit 1B
VICINITY MAP

PREVIOUS MASTER PLAN

Though there is no previous, comprehensive, airport master plan for Rolle Airfield, an Airport Layout Plan (ALP) was completed in December 1992. The purpose of the ALP at that time was to provide a record drawing of the existing Airfield conditions, which included facility improvements that were completed in January 1992: runway reconstruction, installation of a segmented circle and wind cone, removal of vegetation obstructions, and the construction of a security fence. Other than minor revisions to the ALP drawing's title block, which were performed in February 1998, there have been no other updates since the original ALP was completed. Both the original ALP, and subsequent revision were approved by the YCAA. A requested search of FAA records, however, revealed no record of submittal for approval prior to the time of this publication.

AIRPORT HISTORY

Rolle Airfield has been serving general aviation in Yuma County for nearly 50 years. Originally designated as Auxiliary Field No. 4 (AUX 4), the Airfield was constructed during World War II on 640 acres of Section 35, Township 10 South, Range 24 West, Gila and Salt River Meridian, Arizona. At the time, the runway configuration consisted of a 2-to-3 inch layer of oiled sand over native sand. On March 17, 1952, the Bureau of Reclamation gave Yuma County a license to operate, maintain, and manage Rolle Airfield.

In 1966, the Yuma County Farm Bureau assumed responsibility for the Airfield since the primary benefactors in the area would be farmers and growers, and their related crop dusting operations. The YCAA, which was established in 1966 to administer Yuma International Airport, took responsibility of Rolle Airfield on February 24, 1972. This was done to provide a site for civilian pilot training in the region, as well as to reduce air traffic conflicts at Yuma International Airport/MCAS.

The original agreement between the U.S. Bureau of Reclamation and Yuma County was amended on September 17, 1973, to allow for an additional term of license and to make available State funds for capital improvements. Simultaneously, the Rolle Airfield airport license was officially delegated to the YCAA by the Yuma County Board of Supervisors. In 1986, Yuma County signed a new agreement with the Bureau of Reclamation extending their term of license an additional 25 years.

Improvements to Runway 17-35 took place in early 1976, and consisted of leveling a 50-foot by 2,500-foot area with prepared aggregate base course followed by a 2-inch asphaltic overlay and an emulsion seal coat. State grant funds covered approximately half of the fifty thousand dollar project cost with the balanced being contributed by the YCAA.

The runway improvement sparked an increased use of the Airfield as a reliever for student pilot training as air traffic in and around Yuma International Airport/MCAS increased. Presently, the Airfield is used for over 300 hours a month for civilian pilot training, with nearly all locally trained, primary students spending some portion of their time at Rolle Airfield. Additional uses of the Airfield include aircraft testing, test parachute drops and military training exercises. Due to environmental concerns, crop dusting operations are no longer allowed

at Rolle Airfield.

AIR TRAFFIC ACTIVITY

At general aviation airports, the number of based aircraft and total annual operations (takeoffs and landings) are the main indicators of aviation activity. These indicators are then used in subsequent analyses later on in the Master Plan process for projecting future aviation activity as well as for determining future facility requirements.

Rolle Airfield has no based aircraft at the present time, nor formal procedures for gathering detailed operations information. The operations estimates for the Airfield summarized in **Table 1A**, were obtained from historic FAA 5010 Forms (Airport Master Record), and reflect only those years available from FAA's Western Pacific Region archives. Additionally, operations statistics from other sources will be presented for comparison in Chapter Two, Aviation Demand Forecasts.

TABLE 1A
Estimated Aircraft Operations Summary

Year	General Aviation	Military	Total
1988	5,400	600	6,000
1989	2,600	1,000	3,600
1990	2,600	1,000	3,600
1992	2,600	2,000	4,600
1995	2,900	2,000	4,900
1996	2,900	2,000	4,900
1998	2,900	2,000	4,900

Source: FAA Form 5010, Airport Master Record, Rolle Airfield.

AIRPORT FACILITIES

Functionally, airport facilities can be divided into two broad categories: airside and landside. The airside category includes those facilities directly affecting take-offs and landings. Landside facilities are those facilities that provide for a safe and efficient transition between ground and air transportation as well as support facilities necessary for the daily operations of the airport.

AIRSIDE FACILITIES

Airside facilities usually include runways, taxiways, airport lighting systems, and navigational aids. The existing facilities at Rolle Airfield, both airside and landside, are depicted on **Exhibit 1C.**

Runway

The original dirt runway/taxiway configuration of Rolle Airfield from its active military days is still visible today. This triangular arrangement, the standard military airfield layout, consisted of two runways at opposing angles (for maximum wind coverage) connected by a single southeast-northwest taxiway alignment. The northeast-southwest oriented runway and the previously discussed connecting taxiway have both been abandoned.

Rolle Airfield is currently served by a single runway. Runway 17-35 utilizes the former north-south runway orientation. Runway 17-35 is an asphalt-paved runway which is 2,800 feet long by 60 feet in width, and in good

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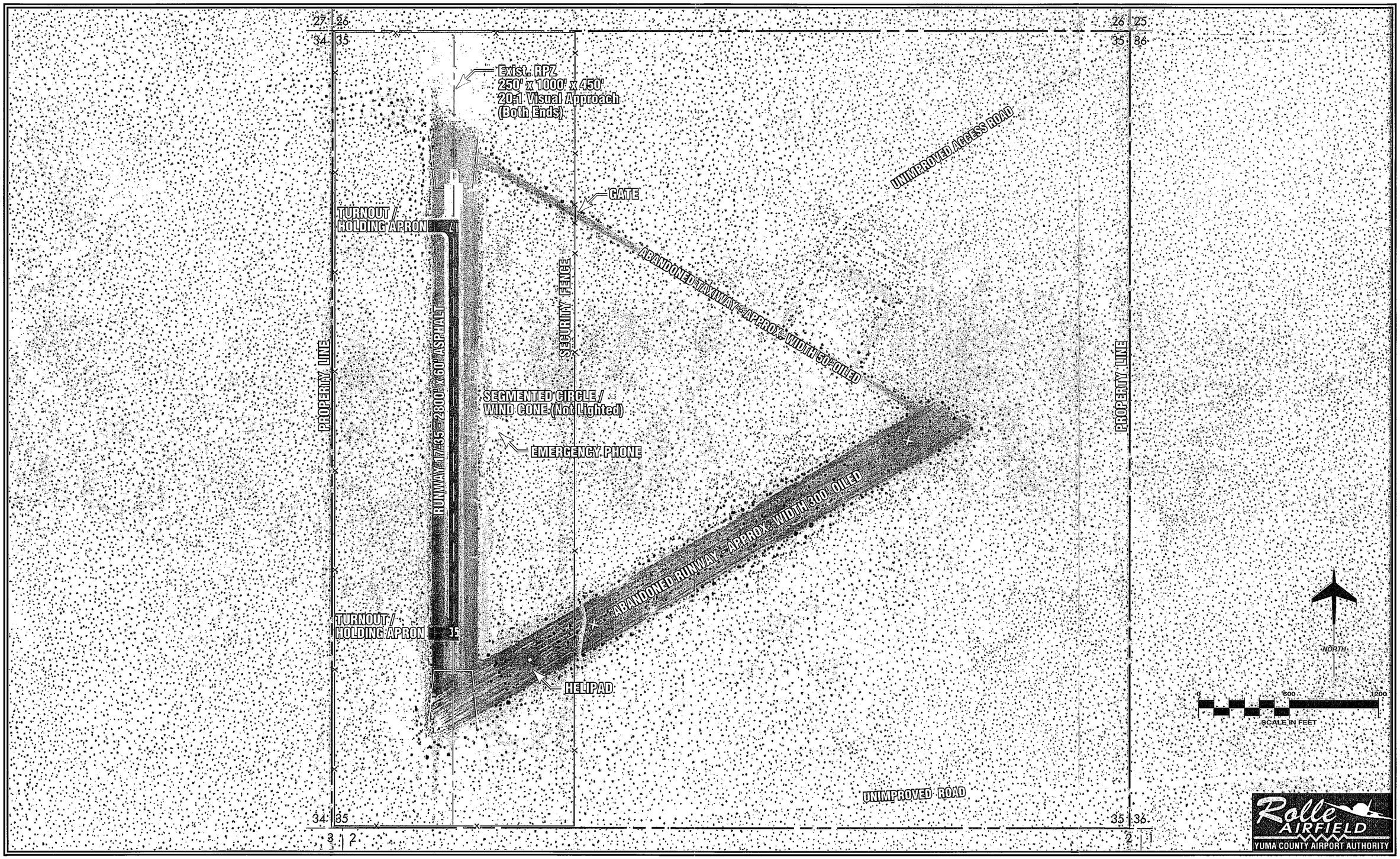

Exhibit 1C
EXISTING FACILITIES

condition. According to the *Rolle Airfield, Airport Layout Plan* (dated December 1992, revised February 1998) this runway is strength-rated at 8,000 pounds for single wheel loading (SWL). Single wheel loading refers to aircraft landing gear design that incorporates a single wheel on each main landing gear strut. It should be noted, however, that the latest *Airport/Facility Directory, Southwest U.S., Effective 9 Sep 1999 to 4 Nov 1999* (published by the U.S. Department of Commerce) shows no declared runway pavement strength data for Rolle Airfield.

In addition, there is an approximately 300-foot wide (centered on runway), heavily rutted, oil-treated area which extends ±500 feet beyond each runway end. Another remnant of the Airfield's military legacy, this area was oiled in order to control sand and dust generated from both ambient winds, and aircraft operations on the original, sand surfaced runway. A summary of the current airside data pertaining to Runway 17-35 is presented in **Table 1B.**

TABLE 1B **Runway Data - Runway 17-35** **Rolle Airfield**	
Length (feet)	2,800
Width (feet)	60
Surface Material (Condition)	Asphalt (Good)
Pavement Strength (lbs.)	8,000 (SWL)
Effective Gradient (%)	0.001
Edge Lighting	None
Visual Aids	None
Markings (Condition)	Basic/Basic (Fair)

Taxiways

At an airport, taxiways facilitate aircraft movement between the runway and the aircraft parking or storage areas. Due primarily to the fact that it lacks based aircraft or storage facilities, there are no active taxiways at Rolle Airfield. As previously mentioned, the former military-era taxiway has been abandoned. There are, however, paved turnouts/holding aprons available at each runway end, should an aircraft require their use. Similar to Runway 17-35, there is an approximately 50-foot wide, oiled area which runs the length (± 3,375 feet) of this abandoned taxiway.

Helipad

A 20' by 20' concrete helipad is located southeast of Runway 35 (see **Exhibit 1C**). The FATO (Final Approach and Take Off) zones for this helipad run north and south,

paralleling the orientation of Runway 17-35.

Airfield Lighting, Wind Indicators, and Pavement Markings

Airfield Lighting: Airfield lighting is an essential element to efficient and safe aircraft operations at an airport during periods of darkness or climatic-related poor visibility. Lighting aids can include: identification lighting (airport beacon), runway/taxiway lighting (e.g., MIRLs/MITLs), lighted airfield (runway/taxiway) signage, visual approach lighting (VASIs/PAPIs), and runway end identification lights (REILs) or runway threshold lights. Currently, no lighting aids are available for use at Rolle Airfield.

Wind Indicators: Located at midfield and approximately 270 feet east of Runway 17-35 is a standard FAA wind cone (not lighted) with a segmented circle. Pilots use the wind cone to determine surface wind conditions (direction/approximate speed) prior to take-offs and landings. In addition, there is a solar and battery powered emergency phone located within the segmented circle. For operating procedures regarding the emergency phone, see **Airport Emergency Response Capability** in the **Landside Facilities** section which is presented later in this chapter.

Pavement Markings: As with airfield lighting, pavement markings, both on the runways and taxiways, assist in safe and efficient aircraft operations at an airport. The basic markings of Runway 17-35 identify the runway centerline and numerical designation. The presence of the helipad located southeast of Runway 35 is indicated with non-standard markings. Additionally, there are aircraft holding positions delineated on the previously described paved turnouts/holding aprons located at each runway end. Furthermore, painted yellow crosses indicating the closed runway and taxiways are visible on or near the intersections of the active and closed runway/taxiway surfaces. All of the pavement markings at the Airfield are in fair condition.

Navigational Aids

Navigational aids are electronic devices that transmit radio frequencies which provide properly equipped aircraft and pilots with in-flight, point-to-point guidance and position data. Located on or near the airport, navigational aids can be classified as either enroute or terminal area navigational aids. The types of enroute electronic navigational aids available to aircraft flying to or from Rolle Airfield include: the very high frequency omindirectional range (VOR) facility, nondirectional beacon (NDB), Loran-C, and global positioning system (GPS).

The most common enroute navaid, the VOR, transmits azimuth readings via radio signal at every degree thus providing 360 individual navigational courses. Often, the VOR is combined with Distance Measuring Equipment (DME) which provides both distance and direction information to pilots. Civilian VORs and military tactical air navigation aids (TACANs) are frequently combined to form a VORTAC. These VORTACs provide distance and direction information to both civilian and military pilots and aircraft. The Bard VORTAC (Frequency 116.80) and the Mexicali VOR/DME (Frequency 115.00) which are located 15.7 miles northeast and 27.3 miles west of the Airfield, respectively, are available to pilots

enroute to or from Rolle Airfield.

An NDB facility transmits nondirectional radio signals that the pilot of an appropriately equipped aircraft can use to determine the bearing to and from the NDB facility, and then "home" or track to or from the station. Aircraft flying to or from Rolle Airfield can utilize the Golden Eagle NDB (Frequency [LF] 413, Identifier OEG) facility located approximately 24 miles northeast of the Airfield.

Loran-C is a ground-based enroute navigational aid which utilizes a system of transmitters located in various locations across the continental United States. LORAN-C varies from the VOR as pilots and aircraft are not required to navigate using a specific facility (with the VOR, pilots must navigate to and from a specific VOR facility). With a properly equipped aircraft, pilots using Loran-C can directly navigate to any airport in the United States.

Relatively new to general aviation, when compared to the previously discussed navigational systems, GPS is an additional navigational aid for pilots enroute to the airport. GPS was initially developed by the United States Department of Defense for military navigation around the world. Increasingly, over the last several years, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in a fixed orbit around the globe to transmit electronic signals which properly equipped aircraft use to determine altitude, speed, and navigational information. GPS is similar to Loran-C in that pilots do not have to navigate to or from a specific navigational facility. GPS provides the same precision and safety factors offered by the older, ground-based systems, yet can be instituted and maintained at a far lower cost. It should be noted that the *Navigational Aids and Aviation Services Special Study* (December 1998) completed by ADOT's - Aeronautics Division, recommends a future one-mile visibility minimum, GPS approach be implemented to Runway 17 at Rolle Airfield.

Based on *The Federal Radionavigation Plan* developed in 1996, the FAA had originally planned to begin phasing out traditional ground-based, enroute navigational aids beginning in 2005, with GPS becoming the sole means of navigation by 2010. The FAA schedule had called for phase-out of established navigational aids including VOR's between 2005 and 2010, NDB's between 2000 and 2005, and Loran-C by the year 2000. According to the draft version of 1999 plan, however, the FAA now plans to maintain a backup network of ground systems for pilots flying under very low visibility conditions (Category II and Category III) well beyond 2010. The new FAA plan pushes the final phase out of the older, conventional navigational systems to 2020.

Instrument Approach Procedures

Instrument approach procedures are a series of predetermined maneuvers established by the FAA using electronic navigational aids that assist pilots in locating an airport during low visibility and cloud ceiling conditions. Currently, Rolle Airfield has no instrument approach procedures, which means the Airfield is essentially closed to all operations when weather conditions deteriorate to a point where visual flight is no longer feasible.

REGIONAL AIRSPACE, AIR TRAFFIC CONTROL, AND OTHER AREA AIRPORTS

REGIONAL AIRSPACE

The FAA has established an airspace structure to regulate and develop procedures for aircraft operating within U.S. Airspace. These procedures and regulations help to ensure a safe and efficient airspace environment for all categories of aviation. The U.S. airspace structure provides for two basic categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and G. **Exhibit 1D**, further defines airspace classifications.

Class A airspace is controlled airspace and includes all airspace from 18,000 feet mean sea level (MSL) to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is controlled airspace surrounding high activity commercial service airports (i.e., Phoenix Sky Harbor International Airport). Class C airspace is controlled airspace surrounding lower activity commercial service (i.e., Tucson International Airport) and some military airports (i.e., Davis-Monthan Air Force Base). Class D airspace is controlled airspace surrounding airports with an air traffic control tower (i.e., Yuma International Airport). All aircraft operating within Class A, B, C, and D airspace must be in contact with the air traffic control facility responsible for the particular airspace. Class E airspace is controlled airspace that encompasses all instrument approach procedures and low altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio communication with air traffic control facilities, visual flight can only be conducted if minimum visibility and cloud ceilings exist. Class G is uncontrolled airspace that is not Class A, B, C, D, or E controlled airspace. In general, within the United States, Class G Airspace extends up to 14,500 feet above mean sea level (MSL). At and above this altitude, all airspace is within Class E Airspace, excluding the airspace less than 1,500 feet above the terrain and certain special use airspace areas.

The airspace surrounding Rolle Airfield is highly complex and heavily influenced by military aviation activity in the region. As the pattern altitude (see Local Operating Procedures section) for Rolle Airfield is 1,200 feet MSL, the Airfield is located within both Class G uncontrolled airspace (up to 700 feet AGL - above ground level) and Class E controlled airspace. **Exhibit 1E**, depicts Rolle Airfield and it's relationship with the regional airspace.

Special-use (Military) Airspace

The Airfield itself lies within an area of special-use airspace designated as a Military Operations Area (MOA). This area, known as the Dome MOA, begins south of the City of Yuma and extends both west and south to the U.S.-Mexico border, and east to where it abuts a restricted airspace area designated as R-2301W. Civilian operations within a MOA are not prohibited though civilian aircraft are cautioned to remain alert for military aircraft while operating in the MOA. Military operations in the Dome MOA are intermittent and these schedules may be obtained by NOTAM (Notice To Airman). Military

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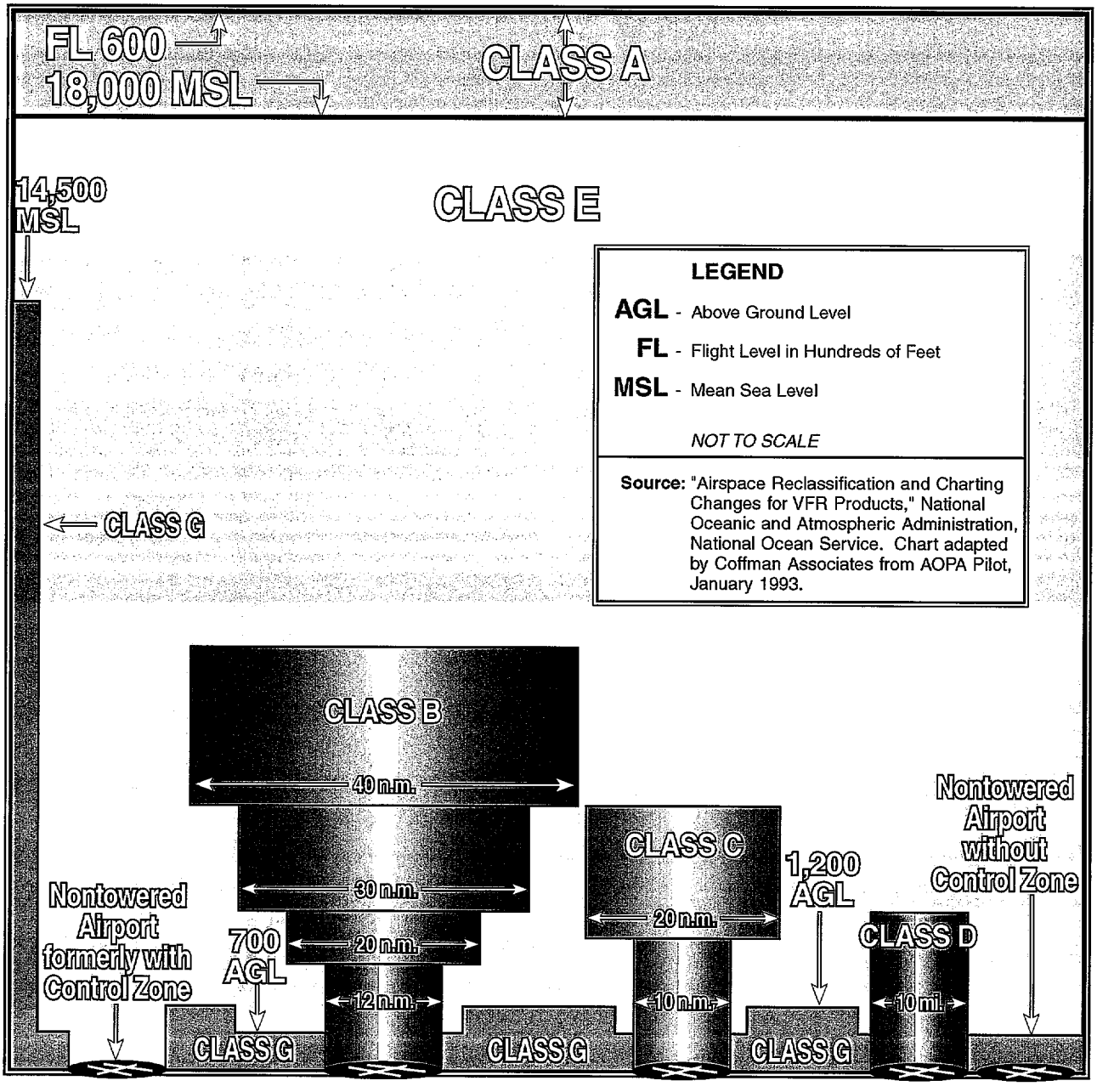

NEW CLASSIFICATION	OLD CLASSIFICATION
CLASS A	Positive Control Area, Continental Control Area (part)
CLASS B	Terminal Control Area (TCA)
CLASS C	Airport Radar Service Area (ARSA)
CLASS D	Control Zone with Tower, Airport Traffic Area
CLASS E	Continental Control Area (part), Transition Areas, Control Zones without Tower
CLASS G	Uncontrolled Airspace

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YUMA COUNTY AIRPORT AUTHORITY

Exhibit 1D
AIRSPACE CLASSIFICATION

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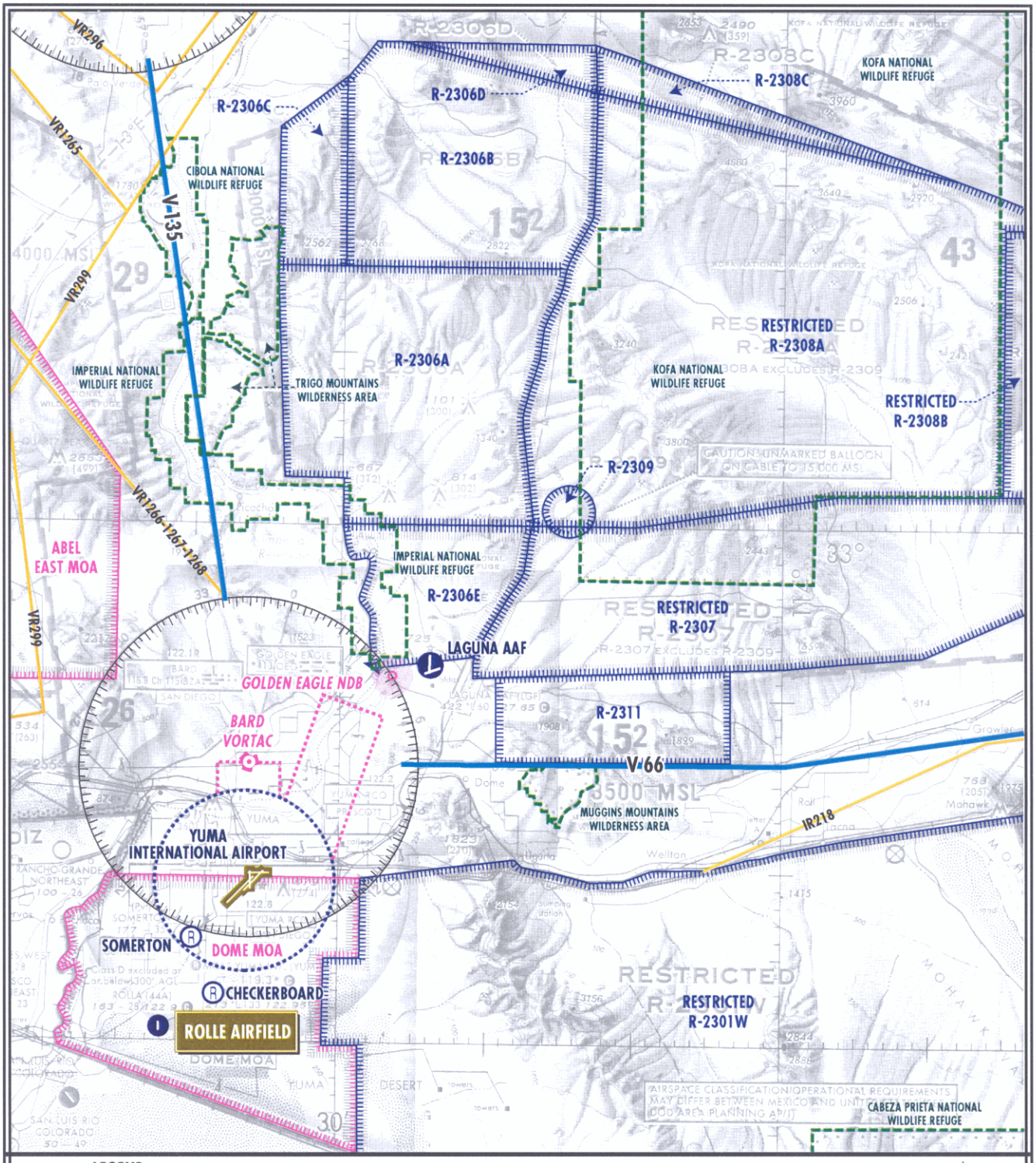

LEGEND:

- Hard-surfaced runways 1500ft. to 8069ft.
- Hard-surfaced runways greater than 8069ft. or some multiple runways less than 8069ft.
- VORTAC
- Non-Directional Radiobeacon (NDB)
- Compass
- Victor Airways
- Military Training Routes
- Prohibited, Restricted, Warning and Alert Areas
- Military Operations Area (MOA)
- Class D Airspace
- Class E Airspace
- Wildlife Refuge Areas

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SCALE IN MILES

NORTH

Rolle AIRFIELD
YUMA COUNTY AIRPORT AUTHORITY

Exhibit 1E
REGIONAL AIRSPACE SETTING

operations within the Dome MOA are conducted at altitudes above 6,000 feet Mean Sea Level (MSL).

Restricted Area R-2301W borders the Dome MOA and begins approximately nine (9) miles east of the airport and covers the entire area from Interstate Highway 8 near Yuma on south to the U.S.-Mexico border. Operations within R-2301W are continuous and at altitudes from the surface up to Flight Level 800 (80,000 feet).

Other Restricted areas located within the vicinity of and northeast of the Airfield are Restricted areas R-2306A, B, C, D, E; R-2307; R-2308 A, B; R-2309 and R2311. Military operations within all these areas are continuous and at varying altitudes. Restricted areas R-2306A, B, and E and R-2308B extend from the surface to 80,000 feet. R-2306C extends from the surface to 17,000 feet. R-2306D extends from the surface to FL 230 (23,000 feet). Military aircraft have no altitude restrictions within R-2307. R-2308A extends from 1,500 above the surface to 80,000 feet while R-2308C extends from 1,500 feet above the surface to Fl 230. R-2309 extends from the surface to 15,000 feet to protect an unmarked, tethered balloon. R-2311 extends from the surface to 3,500 feet MSL.

Northwest of the airport, across the Arizona-California border, is the Abel East MOA which operates intermittently at altitudes between 5,000 feet MSL up to, but not including, 13,000 feet MSL.

Other Airspace

Additionally, the Imperial National and Cibola Wildlife Refuges, as well as the Muggins and Trigo Mountains Wildlife Areas are all located within 40 miles of the Airfield. While aircraft operations are not restricted over these areas, aircraft are requested to maintain a minimum altitude of 2,000 feet above ground level.

As a further note, Victor Airways V66 and V135 are used by aircraft enroute to or departing the Yuma metropolitan area, located northeast of Rolle Airfield. Victor Airways are a system of federal airways established by the FAA, which utilize VOR navigational facilities. These airways are corridors of airspace eight miles wide that extrude upward from 1,200 feet MSL to 18,000 feet MSL and extend between VOR navigational facilities. All Victor Airways in the Yuma area emanate from the Bard VORTAC and are identified on **Exhibit 1E**.

AIR TRAFFIC CONTROL

As previously discussed, Rolle Airfield lies within Class G, uncontrolled airspace. Operations within Class G airspace do not require contacting an air traffic control facility. Flight operations conducted outside of Class G airspace, yet still within the Dome MOA, are coordinated through the airport traffic control tower (ATCT) at Yuma International Airport for Class D airspace surrounding Yuma International Airport (5 mile radius), and Yuma Approach Control for Dome MOA airspace other than Class D or Class G. Both of these facilities are located at Yuma International Airport/MCAS (Yuma Marine Corps Air Station), and are operated by MCAS personnel. The tower normally operates Monday through Friday from 7:00 a.m. to 11:00 p.m., and is closed on weekends.

The tower schedule is subject to change, depending upon military operational requirements, with the MCAS issuing NOTAMS (Notices to Airmen) detailing any schedule changes as they occur. Aircraft enroute to or from the Dome MOA are controlled by the Los Angeles Air Route Traffic Control Center (ARTCC). The Los Angeles ARTCC controls aircraft in a large, multi-state area.

Local
Operating Procedures

Rolle Airfield, as noted earlier in this chapter, is authorized for VFR general aviation aircraft operations during daylight hours only. Military, agriculture, and law enforcement aircraft conducting night operations at the Airfield do so at their own risk. Furthermore, requests for military training at the Airfield requires 48 hours advance notice so as to allow time for publishing NOTAMS in order to inform general aviation of military activity at Rolle Airfield. The local operating procedures governing aviation activity at the Airfield are as follows.

Arrival Procedures: Rolle Airfield uses the standard left-hand traffic pattern. Arriving aircraft must use the standard traffic pattern entry procedures for an uncontrolled airport. This requires aircraft to utilize a forty-five (45) degree angle to enter a left downwind leg for Runway 35 or a right downwind leg for Runway 17, all the while announcing (CTAF 122.9) their position on downwind leg, base leg, and final approach. Traffic pattern altitude for fixed wing aircraft is 1,200 feet MSL, penetrating Class E Airspace approximately 310 feet. Use of extreme caution is encouraged when approaching the Airfield. A missed approach at the Airfield requires a 180-degree left turn to maintain flight within U.S. Airspace. The YCAA encourages that pilots using Rolle Airfield be extra vigilant, and use proper radio and flight procedures in order to keep traffic pattern conflicts at the Airfield minimal. Pilots are further discouraged from stopping on the runway when other aircraft are in the traffic pattern.

Departure Procedures: Departures are allowed in any direction that does not conflict with the traffic pattern in use when the pilot's intentions are announced.

Helicopter Operations: Helicopter operators, per Federal Aviation Regulation (F.A.R.) 91.129, must avoid the fixed-wing traffic pattern when approaching the helipad located southeast of Runway 35. The traffic pattern altitude for helicopters is 800 feet MSL. Additionally, skid equipped helicopters are prohibited from making touch-and-go or full stop landings on Runway 17-35 or the turn out areas. High desert temperatures leave the asphalt surfaces highly susceptible to helicopter skid damage. Wheeled helicopters using the runway are required to stay over the runway, and not land or hover adjacent to the active landing area. Hovering or landing next to the runway creates a FOD (Foreign Object Damage) hazard for aircraft using the runway.

OTHER AREA AIRPORTS

Within a 30 nautical mile radius of Rolle Airfield there are four (4) airports: one (1) public-use airport, Yuma International Airport/MCAS, and two (2) private-use airports, Somerton and Checkerboard, and one(1) military airport, Laguna AAF, which is

located near the Yuma Proving Grounds facility and northeast of the City of Yuma. Also, located approximately 15 miles northeast of Rolle Airfield is Auxiliary Field No. 2, an abandoned military field (paved surface +3,000 feet in length) situated on the Barry M. Goldwater Air Force Range. A brief description of each of the active airports follows.

Yuma International Airport-MCAS, is a joint-use facility with four available runways. It is located approximately 10 nautical miles northeast of Rolle Airfield. Runways 3L-21R and 3R-21L parallel each other, and are used primarily by military aircraft operating out of Yuma-MCAS. Runways 17-35 and 8-26 serve mostly civilian operations. At 13,299 feet by 200 feet wide, Runway 3L-21R is the longest runway available for civilian use in Arizona. This runway is constructed of concrete, and has pavement strength-ratings of 103,000 pounds single wheel (SW), 200,000 pounds dual wheel (DW) loading, and 400,000 pounds dual-tandem (DT) wheel loading. Runway 3R-21L, is the main departure runway for military jet traffic. This runway's dimensions are 9,240 feet long by 150 feet wide. Runway 3R-21L has a wheel loading capacity of 200,000 (SW) and 345,000 pounds (DW).

Runway 8-26, the primary civilian runway, is 6,150 feet long and 150 feet wide. The wheel loading capacity Runway 8-26 has is 63,000 pounds single wheel (SW) 137,000 pounds dual wheel (DW), and 206,000 (DT). The fourth runway, Runway 17-35, the crosswind runway is 5,710 feet long by 150 feet wide. Runway 17-35 has a wheel loading capacity of 95,000 pounds (SW) and 171,000 (DW). According to ADOT Aeronautic's statistics, total operations for 1999 were 90,788 with approximately 20 percent of these being general aviation operations. Additionally, ADOT records lists a total of 105 based general aviation aircraft for Yuma International-MCAS. As previously discussed, civilian operations at Yuma International Airport are managed by the YCAA.

Somerton Airport is located approximately 5.5 miles northeast of Rolle Field. This airport is served by two (2) dirt runways, one measuring 3,500 feet (length) by 200 feet (width), and the other, 1,800 feet (length) by 150 feet (width). Available public records indicate 16 based aircraft as of September 1999. As noted, this is a private-use facility which is unavailable to the public without prior permission.

Checkerboard Airport is approximately 3.5 miles northeast of Rolle Airfield. It's single, sand surface runway is 2,600 feet long by 60 feet wide. Public records dated September 1999 show one (1) based aircraft for this facility. Like Somerton Airport, Checkerboard Airport is available only by prior permission.

Laguna AAF is approximately 26 miles northeast of Rolle Airfield. Owned and operated by the U.S. Army (Yuma Proving Grounds), this airfield is used for both training and testing, and is served by two (2) asphalt runways. These runways measure 6,000 feet (length) by 150 feet (width) and 6,118 feet (length) by 150 feet (width). Public-use of the airfield is limited to extreme emergencies only.

The regional relationship of Rolle Airfield with the above airports is illustrated on **Exhibit 1E.**

LANDSIDE FACILITIES

At an airport, landside facilities are those facilities that accommodate pilots, passengers and aircraft. Landside facilities at Rolle Airfield are, for the most part, nonexistent. Aircraft storage (hangars), aircraft parking apron/tiedowns, aircraft service and maintenance (FBOs), aircraft fueling/fuel storage, or utilities such as electricity, water, gas, sewer, solid waste disposal or regular telephone service are currently unavailable at the Airfield. Other facilities or services, though minimal or poorly defined, such as airport security, security fencing, auto parking, and the Airfield's emergency response ability, could be considered as existing at the Airfield. The landside facilities which are available at Rolle Airfield are depicted, if applicable, on **Exhibit 1C**, and are further described below.

Airport Security: A daily condition assessment and security inspection is performed by YCAA staff. Any deficiencies noted from the inspections are assessed by the Airport Director at Yuma International Airport in order to determine any corrective or necessary action required.

Security/Perimeter Fencing: A four-strand, barbed wire fence encloses the operations (landing) area of the Airfield. Approximately centered about Runway 17-35, the fencing extends ±800 feet either side of the runway centerline as well as between 1,230 to 1,240 feet beyond each runway end. Total area enclosed by this fencing is approximately 192 acres or 30 percent of the Airfield's total property (640 acres). Standard FAA warning signs alert visitors to the prohibition of trespassing.

Auto Parking: As such, there is no designated auto parking area at Rolle Airfield. Vehicles visiting the Airfield may park wherever is most convenient to the purpose of their visit. The gated access, provided in the security fencing northeast of the end of Runway 17, remains locked when unattended by YCAA staff, as ground access to the Airfield is restricted without prior approval of the YCAA.

Airport Emergency Response Capability: A solar and battery powered, emergency phone is located within the Airfield's segmented circle. The preprogrammed phone connects directly to an emergency 911 center only, and no other number can be dialed. Operating instructions are simple: open the cover, pickup the handset, push the red button, and an emergency operator should answer. First response is the responsibility of the San Luis Fire Department, the nearest fire fighting entity, located approximately six (6) miles away. They are, however, not currently equipped or trained to handle an aviation related emergency.

In addition, for emergencies, the MCAS in Yuma monitors frequency 121.5 MHZ 24-hours a day.

Airport Utilities: As noted, basic utilities such as electricity, natural gas or propane, water, sewer, and phone service do not currently exist at the Airfield. The utility providers to the San Luis and Rolle Airfield area are listed below.

- **Electricity:** Arizona Public Service (APS)
- **Water:** Municipal Water Company
- **Sewer :** Municipal Sewer System

- **Telephone:** U.S. West Communications
- **Propane:** Petrolane
- **Natural gas:** Southwest Gas Corporation

SOCIOECONOMIC PROFILE

In the development of an airport master plan, several socioeconomic variables must be factored in. Various measures of current and historical data relating to a region's population, employment, and additional economic indicators have been collected for use in various elements of this master plan. This information is essential in analyzing and determining the airport's future facility requirements, as well as for forecasting future aviation activity. Aviation forecasting is directly related to an area's population base, its economic strength, the ability to sustain a strong economic base over an extended time period, and the region's long range development plans. Information pertaining to the cities of San Luis and Somerton, along with Yuma County and the State of Arizona are presented in the following sections.

Population

The size and structure of the local communities, and the airport's service area are crucial factors when considering the planning of future airport facilities. These elements provide a more comprehensive understanding of the economic base required to determine future airport requirements.

Historical population statistics for San Luis, Somerton, Yuma County, and the state of Arizona are presented for comparison in **Table 1C**. While the city of Somerton and Yuma County closely reflect the average annual growth rate for the state as a whole, San Luis' 10.15 percent rate of growth since 1980 is more than three times that of Somerton, Yuma County or the state for the same time period.

Table 1C
Historical Population

	1980	1990	1998	Avg. Annual Growth Rate (1980-1998)
San Luis	1,946	4,212	11,090	10.15%
Somerton	3,969	5,282	6,625	2.89%
Yuma County	76,205	106,895	135,200	3.24%
Arizona	2,716,546	3,665,228	4,764,025	3.17%

Sources: Arizona Department of Economic Security, U.S. Census Bureau, and the Arizona Department of Commerce Internet Web Site, October 1999.

Furthermore, as previously discussed, San Luis' sister city San Luis Rio Colorado, Mexico sits just across the border, and is reported to be the fastest growing city in Mexico, with a 1998 estimated population of more than 200,000.

Employment

Table 1D summarizes historical Yuma County employment by sector for the period 1985 to 1997. As shown in the table, all employment sectors, with the exception of mining and quarrying, have experienced strong growth since 1985. As discussed earlier, Yuma is predominately an agricultural region, with employment in this sector more than doubling between 1985 and 1997. The services sector and transportation and public utilities sectors have also doubled during this period, while retail/wholesale trade has seen an overall growth of 50 percent, and government 36 percent growth.

TABLE 1D
Historical Employment by Sector (1985-1997)
Yuma County

	1985	1990	1995	1997	Avg. Annual Growth Rate (1985-1997)
Agriculture, Farming, and Ranching	5,125	9,050	11,400	11,875	7.2 %
Manufacturing	1,550	2,100	1,400	1,600	.26 %
Mining and Quarrying	50	50	0	0	N/A
Construction	1,625	1,475	1,700	2,000	1.7 %
Transportation and Public Utilities	875	1,125	1,700	1,800	6.1 %
Retail/Wholesale Trade	6,975	8,325	12,100	11,700	4.4 %
Finance, Insurance, and Real Estate	900	1,050	1,200	1,100	1.6 %
Services and Miscellaneous	4,475	6,450	8,500	9,000	5.9 %
Government	6,300	7,900	9,200	9,800	3.7 %
Totals	27,875	37,525	47,200	48,875	4.7 %

Source: Arizona Department of Economic Security, Research Administration

According to the statistics presented in **Table 1D**, the four largest employment sectors are Agriculture (with 24 percent of the work force), retail/wholesale trade (at 24 percent), government (at 20 percent), and services (at 18 percent).

Additional employment data is presented in **Table 1E** and depicts the latest available civilian labor force information for San Luis, Somerton, Yuma County, and Arizona. To put these statistics in perspective, however, the current reported (Arizona Department of Economic Security, 1998) unemployment rate for each of these entities is as follows; San Luis, 70.3 percent (1998); Somerton, 48.9 percent (1998); Yuma County 27.9 percent (1997); and Arizona 4.2 percent (1998).

Table 1E
Labor Force Statistics

	Civilian Labor Force		
	1980	1990	1998
San Luis	910	2,525	4,076
Somerton	2,877	2,058	3,057
Yuma County	Data unavailable	41,951	**63,298
Arizona	Data unavailable	1,726,000	**2,165,495

** - Statistics shown are for year 1997, the latest reported data.
Sources: Arizona Department of Economic Security, U.S. Census Bureau, and the Arizona Department of Commerce Internet Web Site, October 1999.

Local Economic Growth Indicators

A summary of local economic growth indicators for the cities of San Luis and Somerton is presented in **Table 1F.** These growth indicators, compiled by the Arizona Department of Commerce, depict the economic expansion and development occurring in each of these communities.

Table 1F
San Luis and Somerton Economic Growth Indicators

Year	Taxable Sales($)	Postal Receipts($)	New Building Permits	Public School Enrollment	Net Assessed Valuation ($)
San Luis					
1990	35,115,200	189,493	26	1,303	4,759,686
1997	49,332,000	321,324	384	2,205	12,118,105
1998	56,177,920	351,698	392	2,436	13,471,401
Somerton					
1990	11,888,835	122,281	38	1,897	4,550,803
1997	18,987,040	220,885	119	2,176	7,055,792
1998	19,139,480	225,468	127	2,266	7,425,938

Source: Arizona Department of Commerce Internet Web Site, October 1999.

As illustrated in the table, both San Luis and Somerton have enjoyed growth in each reported category throughout the 1990's. Taxable sales and postal receipts demonstrate the level of commerce conducted in these cities, while new building permits and net assessed total valuation are an indication of the growth in commercial and residential development for each of these communities. School enrollment can be a reflection of population growth.

Conclusion

The outlook for continued population growth and economic expansion for the Airport's service area is quite good. The two proposed projects (new commercial POE and prison facility) discussed earlier in this chapter should aide the acceleration of development in the newly annexed eastern portion of the city of San Luis. Case in point, San Luis Mayor Joe Harper, was quoted in the October 30, 1999 edition of *The Arizona Republic* as stating "the prison will create 400 jobs and add $2 million a year to our city budget".

The new POE's impact on the local economy should be reflected in increased noncommercial border crossings due to reduced restrictions at the existing facility as well as smoother and more expeditious commercial crossings at the new facility which should result in even more commercial traffic. The improved effectiveness provided by each of these POE facilities should serve to boost the economies on either side of the border thus enriching the entire airport service area's combined prosperity.

SURROUNDING LAND USE

The land surrounding Rolle Airfield is undeveloped land covered by native Sonoran desert plant life. According to the *Yuma County Official Zoning Map* (dated 8-4-1975), published by the Yuma County Department of Development Services - Planning and Zoning Division, the land is zoned RA-10 (Rural Agricultural, 10 acre minimum parcels). Land use classifications, also provided by the Planning and Zoning Division, for land adjoining the Airfield is listed as *Agricultural or Open Space*. At the time that research was being conducted for this chapter, the City of San Luis did not have a published General Plan; however, according to city officials, one is being prepared, and is expected to be complete by late 2000 or early 2001.

CLIMATE

The climate surrounding Rolle Airfield is typical for the low desert region of southwestern Arizona, averaging nearly 300 days of sunshine annually. According to weather data recorded by the Yuma Citrus Reporting Station (National Weather Service) and published by the Arizona Department of Commerce, average total annual precipitation for the City of San Luis-Rolle Airfield area is 2.77 inches. The majority of the precipitation occurs in the months of December, January, and August, the periods of heaviest local thunderstorm activity. The normal average daily temperatures for the San Luis area range from a high of 106.3 degrees (F) in July to a low of 38.1 degrees (F) in January.

Average wind speeds for the San Luis area are less than 8 miles per hour. Pilots are, however, cautioned to be aware of blowing sand when utilizing Rolle Airfield. The All Weather Wind Rose, illustrated on **Exhibit 1F**, was constructed using historical data collected at Yuma International Airport between 1987 and 1996, and illustrates a more detailed analysis of wind conditions in relation to the existing runway orientation at Rolle Airfield.

REGIONAL ACCESS AND TRANSPORTATION

Regional access to the Airfield is provided by U.S. Highway 95, located approximately five (5) miles west in San Luis. U.S. 95 runs north and south, and connects Arizona cities located along the Colorado River. Additionally, U.S. 95 intersects Interstate 8 in the City of Yuma. Interstate 8 is an east-west auto and trucking route which begins in Arizona at its intersection with Interstate 10 northwest of Tucson near Casa Grande, and extends approximately 365 miles west to where it terminates in San Diego, California (see **Exhibit 1A**).

As previously discussed, Rolle Airfield is located approximately 4 nautical miles northeast of the heart of San Luis. Ground access to the Airfield from San Luis is provided via an unmarked dirt road located approximately four miles east of downtown San Luis off of County 23rd St. (paved). The Airfield is located approximately three miles north of this point. Access from Somerton or Yuma, to the north, is via Avenue B which intersects U.S. 95 east of Somerton and south of Yuma. Approximately six miles south of the U.S. 95/Avenue B intersection, is a poorly marked (blank red sign) dirt road, from this point, the Airfield is located approximately three miles west of Avenue B. **Exhibit 1B** illustrates Rolle Airfield as it relates to each of these communities.

There is no bus or rail service to the immediate San Luis/Somerton area. Both of these transportation services, however, are present in the City of Yuma. Local taxi service is available in both San Luis and Somerton. National, regional and local freight (truck) companies also service the area.

SUMMARY

The information presented in this chapter provides a foundation from which the remaining elements of the master plan can be assembled. This inventory information on the current conditions and facilities at Rolle Airfield will be the basis, along with additional analysis and data collection, for developing forecasts of aviation activity and defining future facility requirements. This chapter also provides the proper perspective from which to develop a feasible and flexible master plan that best serves the aviation needs of this rapidly developing area of Yuma County.

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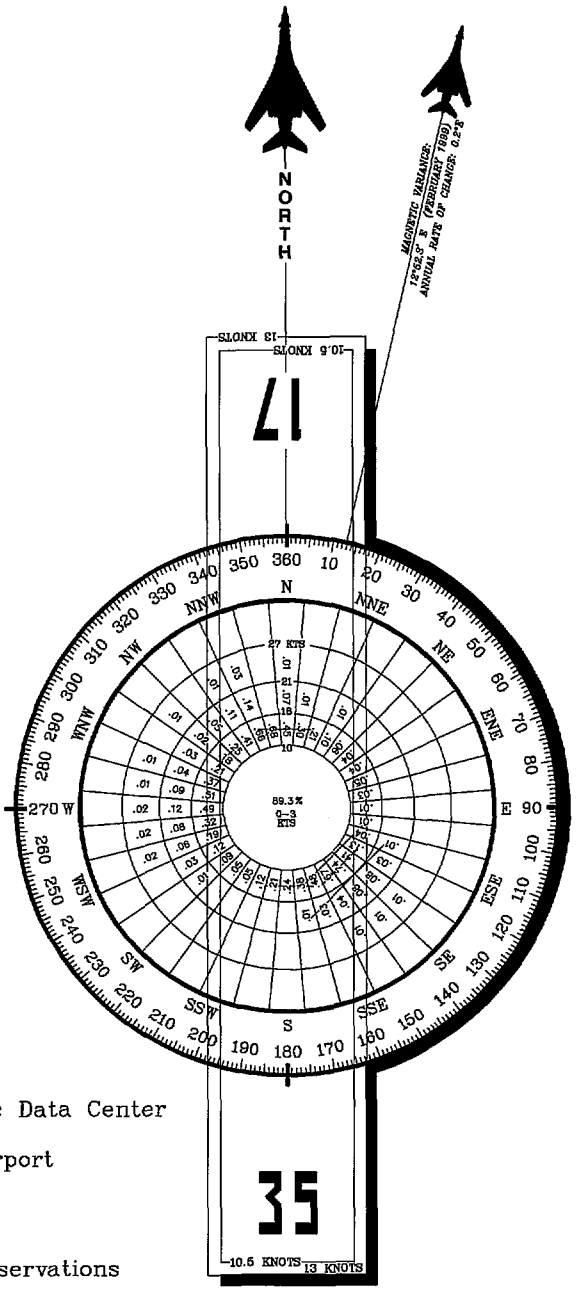

SOURCE:
NOAA National Climatic Data Center
Ashville, N.C.
Yuma International Airport
Yuma, Arizona

OBSERVATIONS:
87,467 All Weather Observations
1987 to 1996

ALL WEATHER WIND ROSE

ALL WEATHER WIND COVERAGE	10.5 Knots (12 MPH)	13 Knots (15 MPH)
Runway 17–35	*96.97%*	*98.27%*

Rolle AIRFIELD
YUMA COUNTY AIRPORT AUTHORITY

Exhibit 1F
ALL WEATHER WIND ROSE